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Comprehension of Emotional Prosody in Parkinson's Disease

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While dysprosodic expression in Parkinson's disease (PD) has been well described, findings from investigations on the comprehension of emotional intonation have been mixed. In the present investigation, we sought to examine the comprehension of emotional and non-emotional prosody among individuals with PD (n=10), neurologically healthy age and education-matched elders (n=7), and college-age adults (n=16). Stimuli included 1500ms audio recordings of professional actors rendering utterances of minimal semantic content (i.e., dates, numbers) using emotional attitudes (n=90, ranging from tentative to dominant) and non-emotional attitudes (n=90, speaker close to intended listener, at a conversational distance, and far apart). Participants rated emotional attitudes and distance using a 5-point Likert scale. Between-group comparisons showed that PD patients and control subjects do not differ in their judgments of distance stimuli, but PD patients are less accurate than control subjects in their judgments of emotional stimuli ( $F [2,24]=8.58, p=.002$ ). Within-group comparisons revealed poorer performance for emotional prosody judgments than non-emotional prosody judgments in PD ( $t[9]=3.29, p=.009$ ); control groups did not differ in judgments of emotional and non-emotional prosody. There was no difference between groups in judgments of fundamental perceptual elements of prosody (pitch, duration, volume). Statistically significant correlations were seen between emotional prosody comprehension and a measure of working memory (letter-number sequencing,  $r=.73, p<.001$ ) and recognition of emotional faces ( $r=.48, p=.01$ ). These findings support the hypothesis that degradation of the frontal-striatal circuit in PD compromises the interpretation of emotional prosody comprehension. Factors contributing to this deficit include limited executive resources and poor comprehension of multi-modal emotional stimuli.

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